



Double purse-string suture closure after excision of nipple adenoma of the breast

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Introduction

Nipple Adenoma (NA) is a rare benign breast disease affecting the nipple that usually affects middle-aged women with an average age of 43-45 years. NA presents clinically with nipple enlargement, nipple discharge (serous or hematic) and the presence of palpable lesion or erosion of the nipple, along with benign developmental variations. Several diagnostic and other examination tools are being used to assess NA, mainly breast ultrasonography, magnetic resonance imaging, cytology and histopathology examination. Treatment of NA is surgical, with various techniques having been described. This report presents the case of NA in the nipple areolar complex (NAC) area treated with the Double Purse-String (DPS) technique, a novel surgical excision and reconstruction method.

Case presentation

A 53-year-old Caucasian woman presented to our department with a small nodule on her left nipple that bled mildly upon examination. The patient had no personal or family history of cancer, or trauma on the area and reported no other comorbidities or administered medications. Physical, imaging and cytological examinations were negative for malignancy, thus NA was proposed as a possible diagnosis and confirmed via biopsy and histopathologic and immunohistologic findings.

The patient underwent complete excision of the nipple under local anesthesia and subsequently two coated vicryl 910 4.0 purse string sutures were placed at the remaining areola in two concentric circles and tightened, with care not to facilitate the healing. The patient fully recovered with no complications and was discharged one hour after the procedure. At 6 months follow-up there was minimal flattening and the patient was satisfied with the aesthetic results.

Discussion

Several surgical approaches and reconstruction options post NA excision have been proposed in the available literature. The main challenge is satisfactory reconstruction and maintenance of the nipple projection, with newer, more conservative techniques,, such as Moh's Micrographic Surgery (MMS) and cryosurgery forgoing this step completely. In this report, we presented the Double Purse-String (DPS) technique:

Method strengths

- Creation of a nipple-areola complex that matches the healthy one in size, colour, position and projection, thus achieving a pleasing and natural appearance.

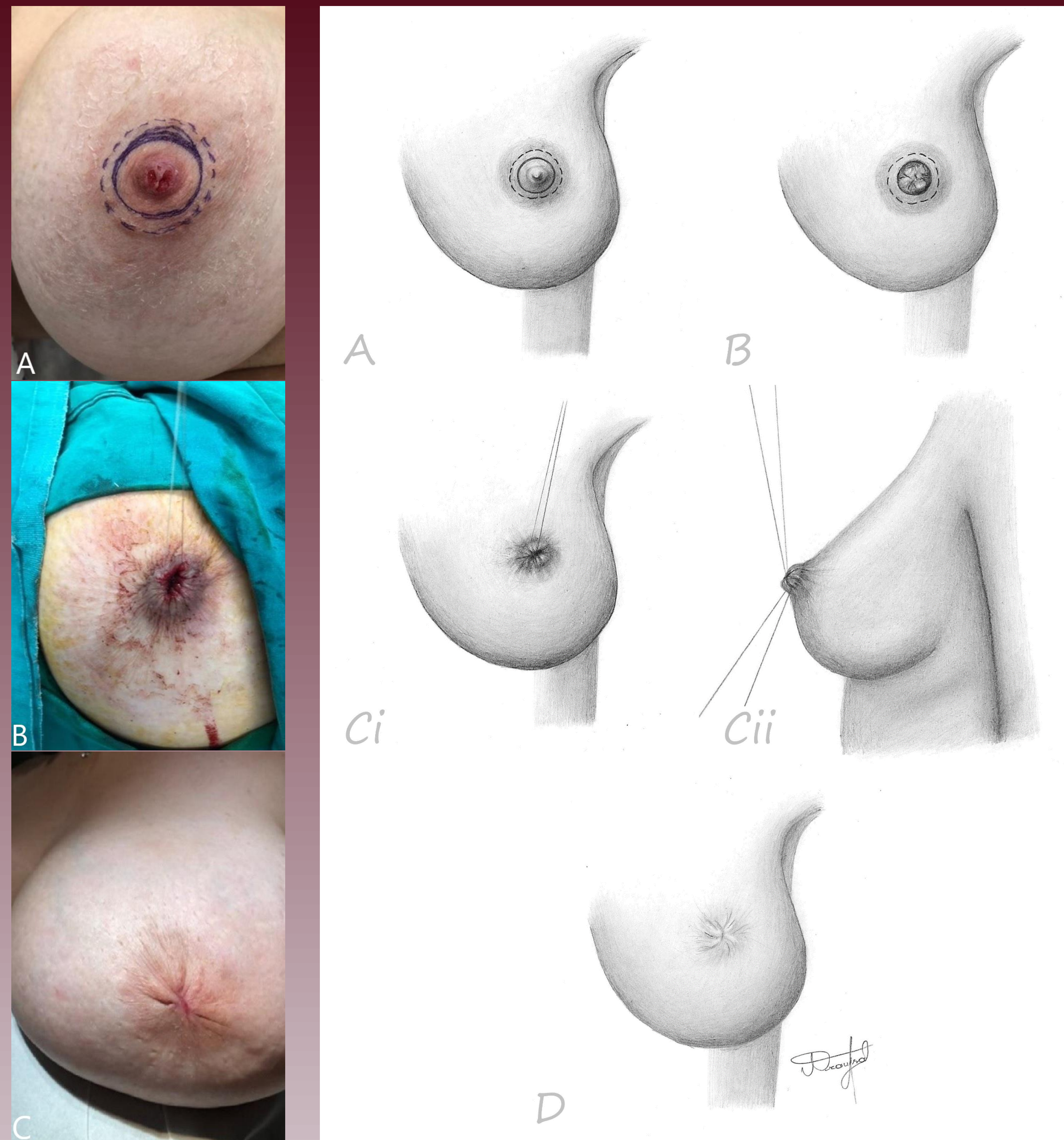


Figure 1 (left): Photographs of the patient **(A)** pre-operatively, **(B)** after resection and **(C)** at 4 months follow-up.

Figure 2 (right): step by step illustration of the DPS technique

A: The marked continuous inner circle will close with the upper suture of the DPS and the outer intermittent circles with the lower equidistantly to the desired projection.

B: Surgical excision of the marked area (adenoma and adequate surrounding tissues).

Ci (anterior view) and **Cii** (side view): Inner circle is closed completely by a purse-string suture and forms the top of the nipple. The outer circle is closed by a second, lower suture, with the in-between distance creating a projection.

D: Final reconstructed nipple at follow-up.

- Achieving a sustained projection without complications (irregularities, scarring).
- The DPS technique can be performed in cases of larger or aggressive NA in contrast to the more conservative methods that can only be applied in smaller and exclusively benign lesions.
- The DPS technique is very simple and requires minimal additional training of the breast surgeon, whereas more advanced techniques necessitate specialized training and expensive equipment. The importance of no extra training being required is further emphasized given the rarity of the affliction.
- The DPS technique carries lower risk of recurrence due to incomplete resection, as well as of malignancy arising from NA, a rare but documented occurrence in eight cases.

Method limitations/concerns

- The suture thread used has been reported to increase propensity to infection and local tissue reaction, however with proper management this can be avoided.
- For an aesthetically satisfactory result, adequate residual areola area is necessary, thus the DPS technique would be most effective in such cases.
- Breastfeeding might be impaired due to the architectural distortion of the nipple, however no evidence-based conclusions can be reported yet, since our patient was post-menopausal.

In conclusion, treatment of NA by the DPS technique is an effective therapeutic intervention, not only due to the assured complete resection of the tumor, but also because of the aesthetically pleasing result that can be achieved; a result comparable to the more advanced, less invasive surgical techniques, though without the higher risk for post-operational residual tumor that these techniques confer.

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